

WHAT IS CLAIMED IS:

1. A bit allocation method for deciding number of transmit bits and gain allocated to each carrier in multicarrier transmission, comprising the steps of:

5       measuring S/N ratio of each carrier and allocating a number of transmit bits to each carrier based upon the S/N ratio;

          subsequently decreasing the gains of carriers for which the number of allocated bits is equal to a maximum  
10   limit number and increasing the gains of prescribed carriers other than these carriers; and

          performing control in such a manner that the sum total of gain increases and sum total of gain decreases will be equal, wherein the total of number of transmit  
15   bits allocated to the carriers is increased.

2. The method according to claim 1, wherein a carrier for which gain is increased is a carrier for which the number of allocated bits is large.

3. A bit allocation method for deciding number of  
20   transmit bits and gain allocated to each carrier in multicarrier transmission, comprising the steps of:

          measuring S/N ratio of each carrier and allocating a number of transmit bits to each carrier based upon the S/N ratio;

25       subsequently increasing the gains of carriers, among carriers to which bits have not been allocated, for which there is a high likelihood that a bit will be allocated anew if the gains thereof are increased, and

decreasing the gains of prescribed carriers other than these carriers; and

performing control in such a manner that the sum total of gain increases and sum total of gain decreases  
5 will be equal, wherein the total number of transmit bits allocated to the carriers is increased.

4. The method according to claim 3, wherein a carrier for which gain is decreased is a carrier for which the number of allocated bits is small but other than two.

10 5. A bit allocation method for deciding number of transmit bits and gain allocated to each carrier in multicarrier transmission, comprising the steps of:

measuring S/N ratio of each carrier and allocating a number of transmit bits to each carrier based upon the  
15 S/N ratio;

subsequently decreasing the gains of carriers, among carriers to which bits have not been allocated, for which there is little likelihood that a bit will be allocated anew even if the gains thereof are increased,  
20 and increasing the gains of prescribed carriers other than these carriers; and

performing control in such a manner that the sum total of gain increases and sum total of gain decreases will be equal, wherein the total number of transmit bits  
25 allocated to the carriers is increased.

6. The method according to claim 5, wherein a carrier for which gain is increased is a prescribed carrier other than a carrier for which the number of allocated

bits is equal to the maximum limit number.

7. A bit allocation apparatus for deciding number of transmit bits and gain allocated to each carrier in multicarrier transmission, comprising:

5        an S/N ratio measurement unit for measuring S/N ratio of each carrier;

         a control unit for allocating a number of transmit bits to each carrier based upon the S/N ratio, subsequently decreasing the gains of carriers for which  
10        the number of allocated bits is equal to a maximum limit number, increasing the gains of prescribed carriers other than these carriers, and performing control in such a manner that the sum total of gain increases and sum total of gain decreases will be equal, thereby  
15        deciding the number of bits and gain allocated to each carrier;

         an allocation table for storing number of bits and gain that have been allocated to each carrier;

         a transmitting unit for transmitting content of  
20        said allocation table to the side of a communicating party; and

         a setting unit for setting the number of allocated bits and the gain of each carrier in a receiving unit which receives and demodulates data that is transmitted  
25        from the communicating party.

8. A bit allocation apparatus for deciding number of transmit bits and gain allocated to each carrier in multicarrier transmission, comprising:

an S/N ratio measurement unit for measuring S/N ratio of each carrier;

a control unit for allocating a number of transmit bits to each carrier based upon the S/N ratio,

- 5 subsequently increasing the gains of carriers, among carriers to which bits have not been allocated, for which there is a high likelihood that a bit will be allocated anew if the gains thereof are increased, decreasing the gains of prescribed carriers other than
- 10 these carriers, and performing control in such a manner that the sum total of gain increases and sum total of gain decreases will be equal, thereby deciding the number of bits and gain allocated to each carrier;

- an allocation table for storing number of bits and
- 15 gain that have been allocated to each carrier;

a transmitting unit for transmitting content of said allocation table to the side of a communicating party; and

- a setting unit for setting the number of allocated
- 20 bits and the gain of each carrier in a receiving unit which receives and demodulates data that is transmitted from the communicating party.

9. A bit allocation apparatus for deciding number of transmit bits and gain allocated to each carrier in
- 25 multicarrier transmission, comprising:

an S/N ratio measurement unit for measuring S/N ratio of each carrier;

a control unit for allocating a number of transmit

bits to each carrier based upon the S/N ratio,  
subsequently decreasing the gains of carriers, among  
carriers to which bits have not been allocated, for  
which there is little likelihood that a bit will be  
5 allocated anew if the gains thereof are increased,  
increasing the gains of prescribed carriers other than  
these carriers, and performing control in such a manner  
that the sum total of gain decreases and sum total of  
gain increases will be equal, thereby deciding the  
10 number of bits and gain allocated to each carrier;  
an allocation table for storing number of bits and  
gain that have been allocated to each carrier;  
a transmitting unit for transmitting content of  
said allocation table to the side of a communicating  
15 party; and  
a setting unit for setting the number of allocated  
bits and the gain of each carrier in a receiving unit  
which receives and demodulates data that is transmitted  
from the communicating party.

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